



Appendix E

ACOUSTICAL ANALYSIS REPORT



Westfield Carlsbad Project

Acoustical Analysis Report

August 22, 2012

Prepared for:
City of Carlsbad
Planning Division
1635 Faraday Avenue
Carlsbad, CA 92008-7314

Prepared by:
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7578 El Cajon Boulevard, Suite 200
La Mesa, CA 91942

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EXECUTIVE SUMMARY

This acoustical analysis report is submitted to satisfy the City of Carlsbad California Environmental Quality Act (CEQA) review requirements for a Specific Plan and Site Development Plan (SDP) for the proposed Westfield Carlsbad project. The purpose of this report is to assess noise impacts from on-site project-related noise sources, and to determine if mitigation is necessary and feasible to reduce property line noise impacts to below the City of Carlsbad's property line noise limits both from direct on-site commercial sources and off-site project-related traffic.

The City of Carlsbad considers an increase of 3 Community Noise Equivalent Level (CNEL) related to transportation noise sources to be significant. In the absence of local standards for stationary sources, the City of Carlsbad uses the County of San Diego standards as a basis for assessing noise impacts from such noise sources. Thus, the property line noise limits for the property line between the site and multi-family residences are 57.5 decibels with A-weighting (dBA) from 7:00 a.m. to 10:00 p.m. and 52.5 dBA from 10:00 p.m. to 7:00 a.m. Other property line noise limits would pose less restrictive limits to project noise generation, therefore this analysis focuses on the residences to the south of the site.

The proposed 77.5-acre Specific Plan area and 28.46-acre SDP site are located within the eastern portion of the existing 96.7-acre Westfield Carlsbad shopping center (shopping center). The project involves the proposed adoption of a Specific Plan and approval of a SDP proposal that would revitalize the existing Westfield Carlsbad regional shopping center through demolition/reconfiguration/reconstruction of 225,631 square feet (sf) of existing commercial buildings and the construction of 35,417 sf of net new commercial area. In addition to redeveloping the Robinsons-May department store, the SDP proposal would add new commercial uses in and around the main mall and construct three new pads for outbuildings where surface parking for the shopping center currently exists.

The closest sensitive receivers that could potentially be affected by the proposed Westfield Carlsbad project are the existing multi-family residences (i.e., Waterstone Carlsbad Apartments and Camino Pointe Village) located to the south of the project, which have a full or partial view of the SDP site and other noise sources in the area (i.e., such as SR-78, as well as the other streets around the project area). All other sensitive receivers are located at a distance where on-site noise generation would not impact them and where project-related traffic generation would be minimal.

The noise environment in the Specific Plan area is mainly influenced by transportation noise generated by SR-78 plus traffic from El Camino Real, Marron Road, Monroe Street, and the unnamed loop road that fronts the west and south sides of the site, with a minor contribution from other commercial areas east of El Camino Real. The existing Westfield Carlsbad shopping center also presently generates roadway and parking lot noise and heating, ventilation, and air conditioning (HVAC) equipment noise.

The Westfield Carlsbad project would have the potential to generate significant noise during the demolition of portions of the parking areas and the construction of the proposed structures and improvements.

Also, the project would introduce several potential operational noise sources, including HVAC equipment, and refrigeration and freezer condensers as part of the renovations and new building construction.

Analysis shows that noise at many of the analyzed receiver locations currently exceed the standard allowable levels with noise generated at the existing center and general project area.

Demolition hours would be limited to the hours and days indicated in the City of Carlsbad Municipal Code. Thus, demolition noise impacts would not violate the City's construction noise ordinances and would be considered less than significant.

The largest change in noise levels for all traffic scenarios analyzed occurs during the Existing Plus Project condition.

The redeveloped Westfield Carlsbad site would be within the normally acceptable noise range for a commercial shopping center as specified in the Carlsbad Compatibility for Community Noise Environment Matrix and no significant noise impacts would occur.

1.0 INTRODUCTION

This acoustical analysis report is submitted to satisfy the City of Carlsbad CEQA review requirements for a Specific Plan and Site Development Plan (SDP) for the proposed Westfield Carlsbad project. The purpose of this report is to assess noise impacts from on-site project-related noise sources, and to determine if mitigation is necessary and feasible to reduce property line noise impacts to below the City of Carlsbad's property line noise limits both from direct on-site commercial sources and off-site project-related traffic.

1.1 NOISE AND SOUND LEVEL DESCRIPTORS

All noise level or sound level values presented herein are expressed in terms of decibels (dB) with A-weighting (dBA) to approximate the hearing sensitivity of humans. Time-averaged noise levels of one hour are expressed by the symbol " L_{EQ} ," unless a different time period is specified. Some noise level data may be presented as octave-band-filtered and/or A-octave-band-filtered data, which are a series of sound spectra centered about each stated frequency, in which half of the bandwidth is above and half of the bandwidth is below each stated frequency. This type of data is typically used for machinery noise analysis and barrier-effectiveness calculations.

The Community Noise Equivalent Level (CNEL) is a 24-hour sound level average, in which sound levels measured during evening and nighttime hours are weighted. Sound levels measured during the evening hours, which are between 7:00 p.m. and 10:00 p.m., have an added 5-dB weighting. Sound levels measured during the nighttime hours, which are between 10:00 p.m. and 7:00 a.m., have an added 10-dB weighting. The Day-Night Sound Level (L_{DN}) is a 24-hour average, in which sound levels have an added 10-dB weighting for the same nighttime hours as CNEL, but no added weighting on the evening hours. Sound levels expressed in CNEL are always based on dBA. These data unit metrics are used to express noise levels for measurement, municipal noise ordinances and regulations, land use guidelines, and enforcement of noise ordinances.

Noise emission data is often provided using the industry standard format of Sound Power, which is the total acoustic power radiated from a given sound source as related to a reference power level. Sound Power differs from Sound Pressure, which measures the fluctuations in air pressure caused by the presence of sound waves, and is the format generally used to describe noise levels as heard by the receiver. Sound Pressure is the actual noise experienced by a human or registered by a sound level instrument. When Sound Pressure is used to describe a noise source, it must specify the distance from the noise source to provide complete information. Sound Power is a specialized analytical method to provide information without the distance requirement, but it may be used to calculate the Sound Pressure at any desired distance.

1.2 PROJECT LOCATION

The proposed 77.5-acre Specific Plan area and 28.46-acre SDP site are located within the eastern portion of the existing 96.7-acre Westfield Carlsbad shopping center (shopping center). The shopping center is located in the northwest portion of the City of Carlsbad, California. More specifically, the shopping center is located to the south of SR-78, west of El Camino Real, north

of Marron Road, and east of the unnamed loop road. Buena Vista Creek and the City of Oceanside are located to the north of the shopping center. Surrounding uses beyond the adjacent roadways consist of open space and commercial to the north and east, multi-family residences and recreation to the south, and commercial to the west. Please see Figures 1 and 2, which provide an area map showing the Specific Plan boundaries; and an aerial view of the site and surroundings, including the measured and modeled receptor locations, respectively.

The zoning designation for the site is General Commercial (C-2). The northern property line of the shopping center partially coincides with the City of Oceanside and the City of Carlsbad boundary (Figure 2). Thus, the area to the north is within the City of Oceanside and the areas to the east, west and south are within the City of Carlsbad. Surrounding areas are zoned by the local jurisdiction(s) as Local Shopping Center (C-L) to the east; Planned Community (P-C) and Open Space (OS) to the south and C-2 to the west. The land to the north in the City of Oceanside is zoned Special Commercial-Highway Oriented (CS-HO) and Public/Semi-Public (PS).

1.3 PROJECT DESCRIPTION

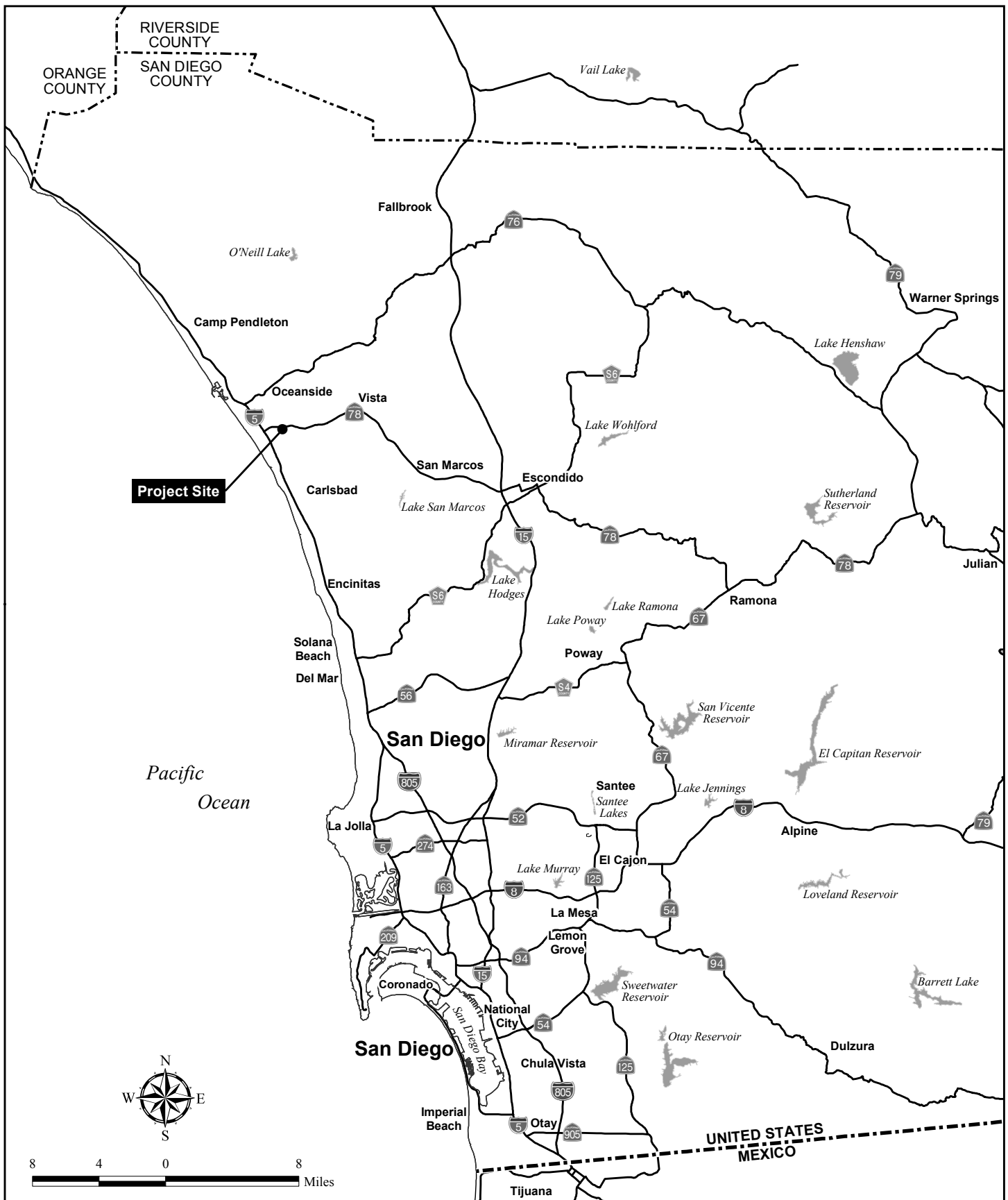
The project involves the proposed adoption of a Specific Plan and approval of a SDP proposal that would revitalize the existing Westfield Carlsbad regional shopping center through demolition/reconfiguration/reconstruction of 225,631 square feet (sf) of existing commercial buildings and the construction of 35,417 sf of net new commercial area. The commercial uses planned for the SDP proposal would include: retail, restaurants, a movie theater, gym and grocery market, and other retail/lifestyle/entertainment commercial uses. If approved, the SDP portion of the project would be open in late 2014 or early 2015.

In addition to redeveloping the Robinsons-May department store and adding new commercial uses in and around the main mall, three new outbuilding pads would be constructed where surface parking for the shopping center currently exists on the east side of the mall.

The existing site currently has 6,402 parking spaces. As part of the SDP proposal, 471 net surface parking spaces would be displaced, resulting in a total of 5,931 parking spaces once the proposed SDP is implemented, including the spaces noted above. Refer to the site plan in Appendix A for more details.

1.4 SENSITIVE RECEPTORS

The closest noise sensitive receptors that have the potential to be affected by the proposed Westfield Carlsbad project are the existing multi-family residences (i.e., Waterstone Carlsbad Apartments and Camino Pointe Village) located to the south of the project, which have a full or partial view of the SDP site. These residences are located within the City of Carlsbad. All other sensitive receptors are located at a distance where on-site noise generation would not impact them and where the project-related traffic generation would be minimal (e.g., less than 10-percent change in volume).

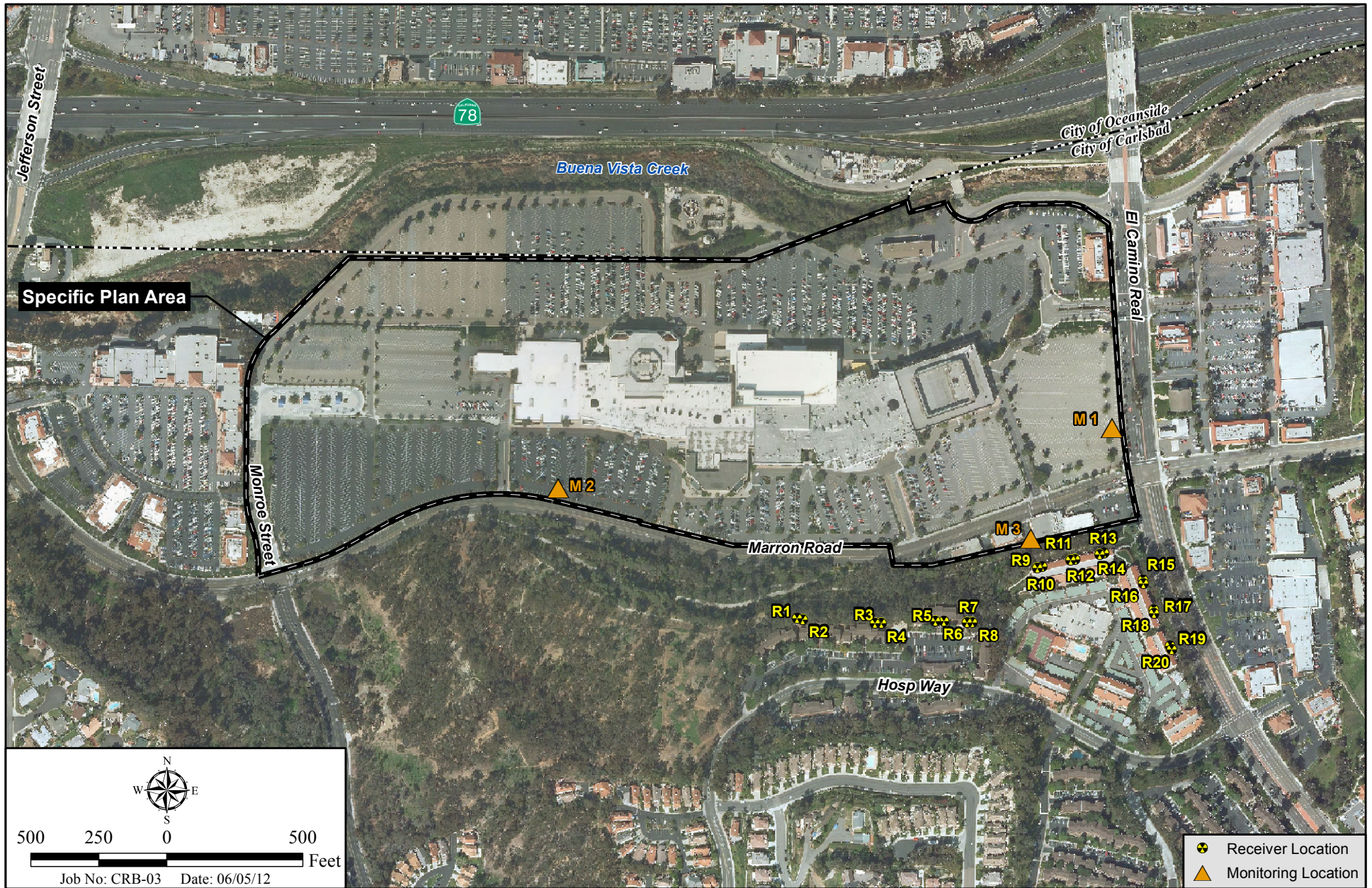


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Regional Location Map

WESTFIELD CARLSBAD

Figure 1



Noise Monitoring and Receiver Locations

WESTFIELD CARLSBAD

Figure 2

1.5 APPLICABLE NOISE STANDARDS

City of Carlsbad

City of Carlsbad Municipal Code

The City of Carlsbad Municipal Code provides the following construction noise limits.

Section 8.48.010 - Limitation of hours for construction.

The erection, demolition, alteration, or repair of any building or structure or the grading or excavation of land in such manner as to create disturbing, excessive or offensive noise during the following hours, except as hereinafter provided, is a violation of this code:

- (1) After sunset on any day, and before seven a.m., Monday through Friday, and before eight a.m. on Saturday;
- (2) All day on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Veterans Day, Thanksgiving Day and Christmas Day.

No zoning-based stationary operational noise limits are included in the City of Carlsbad Municipal Code.

City of Carlsbad General Plan Noise Element

The City of Carlsbad has established noise guidelines in the Noise Element of the City's General Plan. The primary goal of the Noise Element is to achieve and maintain an environment which is free from objectionable, excessive or harmful noise. Applicable policies to this analysis include:

- Enforce the policy of the City that sixty (60) dBA CNEL is the exterior noise level to which all residential units should be mitigated.
- Control harmful or undesirable sounds through the planning and regulatory process with emphasis on noise/land-use compatibility planning.
- Attempt to control noise primarily at its source. Where this is not feasible, controls along the transmission path of the noise should be required.
- Control noise generated through its own functions and activities and minimize noise impacts resulting from City-sponsored or approved activities.
- Require the use of project design techniques, such as, increasing the distance between the noise source and the receiver; placing non-noise-sensitive uses such as parking areas, maintenance facilities, and utility areas between the source and the receiver; using non-sensitive structures, such as a garage, to shield noise-sensitive areas; and orienting buildings to shield outdoor spaces from a noise source to minimize noise impacts during any discretionary review of a residential or other noise sensitive project.
- Discourage the exclusive use of noise walls in excess of 6 feet in height as mitigation for noise along Circulation Element roadways.
- Utilize natural barriers such as site topography or constructed earthen berms to mitigate noise on a project. When noise walls are determined to be the only feasible solution to































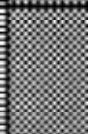





noise mitigation, then the walls shall be designed to limit aesthetic impacts. When over-height walls are necessary to mitigate noise, a berm/wall combination with heavy landscaping, a terraced wall heavily landscaped, or other similar innovative wall design technique shall be used to minimize visual impacts.

- Provide healthy and productive work environments that do not cause hearing damage or other adverse noise-related health impacts to workers in the City of Carlsbad.
- If the acoustical study shows that exterior noise levels cannot be mitigated to the level allowable as identified in this policy or less, the development should not be approved without one or more of the following findings:
 - Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect (noise).
 - Changes or alterations to avoid or substantially lessen the significant environmental effect (noise) are within the responsibility and jurisdiction of another public agency and not the City of Carlsbad. Such changes have been adopted by such other agency or can and should be adopted by such other agency.
 - Specific economic, social, or other considerations make infeasible the mitigation measures or project alternatives to avoid or substantially lessen the significant environmental effect (noise).

City of Carlsbad Noise Guidelines Manual

According to the City of Carlsbad Noise Guidelines Manual (1995), commercial uses are conditionally compatible with exterior noise exceeding 65 CNEL (see Noise Manual Figure IV-1, below) and interior noise levels of commercial buildings are not to exceed 55 dBA L_{EQ} . The Manual also indicates that exterior residential noise impacts above 60 CNEL shall be mitigated to 60 CNEL, and that interior noise impacts to residences shall not exceed 45 CNEL. The City of Carlsbad Ordinances do not regulate General Nuisance noise.

**FIGURE IV-1
LAND USE COMPATIBILITY FOR COMMUNITY NOISE ENVIRONMENTS MATRIX**

Land Use Category.	Community Noise Exposure CNEL, dB						
	55	60	65	70	75	80	
Residential - (all) Single Family, Duplex, Mobilehome, Multi-Family, etc.							<p>INTERPRETATION:</p> <div data-bbox="1122 491 1281 533" style="border: 1px solid black; width: 100px; height: 20px; margin-bottom: 10px;"></div> <p>Normally Acceptable Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.</p> <div data-bbox="1122 722 1281 764" style="border: 1px solid black; width: 100px; height: 20px; background: repeating-linear-gradient(45deg, transparent, transparent 2px, black 2px, black 4px); margin-bottom: 10px;"></div> <p>Conditionally Acceptable New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.</p> <div data-bbox="1122 1047 1281 1089" style="border: 1px solid black; width: 100px; height: 20px; background: repeating-linear-gradient(-45deg, transparent, transparent 2px, black 2px, black 4px); margin-bottom: 10px;"></div> <p>Normally Unacceptable New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.</p> <div data-bbox="1122 1331 1281 1373" style="border: 1px solid black; width: 100px; height: 20px; background: repeating-linear-gradient(45deg, transparent, transparent 2px, black 2px, black 4px); margin-bottom: 10px;"></div> <p>Land Use Discouraged New construction or development should generally not be undertaken.</p> <p>NOTE: McClellan Palomar Airport Noise is regulated by the Airport Comprehensive Land Use Plan (CLUP). See the CLUP for airport noise compatibility guidelines.</p>
Transient Lodging - Motel, Hotel							
School, Library, Church, Hospital, Nursing Home							
Auditorium, Concert Hall, Amphitheater							
Sports Arena, Outdoor Spectator Sports							
Playground, Neighborhood Park							
Golf Course, Riding Stable, Water Recreation, Cemetery							
Office Building, Business Commercial Planned Industrial and Professional							
General Industrial, Manufacturing, .. Utilities, Agriculture							

County of San Diego

The proposed project is located within the City of Carlsbad; however, the City has no noise limits in its Noise Ordinances (as noted above) for stationary noise sources, such as heating, ventilation, and air conditioning (HVAC) units. The City has specified that analysis of nuisance noise levels should be based on the County of San Diego regulations. The applicable portions of the County of San Diego Noise Ordinance (No. 6212; as amended) are provided below, with the noise limits summarized in Table 1-1.

County Noise Ordinance

The County of San Diego Noise Ordinance establishes prohibitions for disturbing, excessive, or offensive noise, and provisions such as sound level limits for the purpose of securing and promoting the public health, comfort, safety, peace, and quiet for its citizens.

As detailed in Section 36.404 (General Sound Level Limits) of the noise ordinance, the general sound level limits within the County are as follows:

Except as provided in section 36.409 of this chapter, it shall be unlawful for any person to cause or allow the creation of any noise, which exceeds the one-hour average sound level limits in Table 1-1, when the one-hour average sound level is measured at the property line of the property on which the noise is produced or at any location on a property that is receiving the noise.

If the measured ambient noise level exceeds the applicable limit in Table 1-1, the allowable one-hour average sound level shall be the one-hour average ambient noise level, plus three decibels.

Table 1-1 COUNTY OF SAN DIEGO SOUND LEVEL LIMITS IN DECIBELS (dBA)		
ZONE	TIME	ONE-HOUR AVERAGE SOUND LEVEL LIMITS¹
(1) R-S, R-D, R-R, R-MH, A-70, A-72, S-80, S-81, S-87, S-90, S-92, and R-V and R-U with a density of less than 11 dwelling units per acre.	7 a.m. to 10 p.m.	50
	10 p.m. to 7 a.m.	45
(2) R-RO, R-C, R-M, S-86, V5 and R-V and R-U with a density of 11 or more dwelling units per acre.	7 a.m. to 10 p.m.	55
	10 p.m. to 7 a.m.	50
(3) S-94, V4, and all commercial zones.	7 a.m. to 10 p.m.	60
	10 p.m. to 7 a.m.	55

¹ The sound level limit at a location on a boundary between two zones is the arithmetic mean of the respective limits for the two zones.

(With regard to its applicability to the proposed project, since the site is commercial and the adjacent southern property is multi-family residential, the applicable nuisance noise limit is 57.5 dBA from 7 a.m. to 10 p.m. and 52.5 dBA from 10 p.m. to 7 a.m.)

City of Oceanside

As described, the project site is located within the City of Carlsbad, but is immediately proximate to the City of Oceanside (Figure 2). Therefore, noise generated by the project has potential to extend into the City of Oceanside, although no noise-sensitive receptors occur in the portion of Oceanside closest to the project site. While noise spillage into another jurisdiction may occur, the City of Carlsbad noise regulations are used in this analysis since the project is under their jurisdiction and subject to their discretionary approval. In addition, the potential for impacts to noise-sensitive receptors in Oceanside is minimal due to their distance from the Specific Plan area. The City of Oceanside noise regulations policies are presented below for reference purposes only.

City of Oceanside Municipal Code

Article III. Sound Level Limits. Section 38.11. Sound level measurement.

The city shall establish appropriate standards and procedures to ensure the accuracy of sound level measurements. Any such measurements shall be made consistent with these standards and procedures.

(Ord. No. 90-21, § 2, 5-23-90)

Article III. Sound Level Limits. Section 38.12. General sound level limits.

(a) Except for exempted activities and sounds as provided in this chapter or exempted properties as referenced in Section 38.15, it shall be unlawful for any person to cause or allow the creation of any noise to the extent that the one-hour average sound level, at any point on or beyond the boundaries of the property in the applicable base district zone on which the sound is produced exceeds the applicable limits set forth below:

Table 1-2 CITY OF OCEANSIDE SOUND LEVEL LIMITS IN DECIBELS (dBA)		
Base District Zone	7:00 a.m. to 9:59 p.m.	10:00 p.m. to 6:59 a.m.
(1) Residential Districts:		
RE (Residential Estate)	50	45
RS (Single-Family)	50	45
RM (Medium Density)	50	45
RH (High Density)	55	50
RT (Residential Tourist)	55	50
(2) C (Commercial)	65	60
(6) OS (Open Space)	50	45

(b) Limits for planned developments. In addition to the sound level limits established above, there is hereby established sound level limits for PD (planned development) base district zones. For any residential land use within a PD zone, the sound level limit is that limit which would be otherwise applicable in the residential district zone (RE, RS, RM, RH or RT) corresponding to density of the residential development in that PD zone. For any nonresidential land use within a PD zone, the sound level limit is that limit corresponding to the C (commercial) or I (industrial) zone which would be applicable to that use if not subject to the PD zone. For the purposes of this section, a land use shall be that use shown on a duly approved planned development plan or specific plan.

(c) Limits for joint boundaries. When property lines form the joint boundary of two (2) base district zones, the sound level limit shall be the arithmetic mean of the limit applicable to each of the two (2) zones.

(Ord. No. 90-21, § 2, 5-23-90)

City of Oceanside General Plan Noise Element

The main goal of the noise element is “to minimize the effects of excessive noise in the City of Oceanside.” To reach this goal, the City of Oceanside has the following objectives:

- Noise levels should be controlled to eliminate danger to public health.
- Noise shall be controlled at the source, where possible.
- Interior noise shall be reduced using soundproofing where other controls are not feasible or fail to adequately reduce noise.

The City of Oceanside Noise Element focuses on noise generated by transportation modes (airport, vehicle, and rail), amplified noise, noise-making apparatus noise, and construction noise. The relevant noise limits are paraphrased below:

- Use of pile driver, power shovel, pneumatic, power hoist or other construction equipment in a residential zone or within 500 feet of a residential zone that would generate over 50 dBA at any property line between the hours of 8 p.m. and 7 a.m., unless an emergency exists.
- Utilize construction equipment in excess of 85 dBA at 100 feet from the source.
- Generate over 5-dBA increase in ambient noise during construction activities between 6 p.m. and 7 a.m.
- Noise-making apparatus should not generate audible noise 50 feet from the source between 10 p.m. and 8 a.m. at a residential receiver.
- Machinery, circulation devices, fans, and other such equipment should not be permitted to operate if noise level generation would exceed 5 dBA above the ambient level at the property line.

2.0 ENVIRONMENTAL SETTING

Most of the off-site residential noise receptors are on top of a bluff overlooking the project site. These receptor locations have a clear or partial view of SR-78 and other streets in the area (Figure 2).

2.1 EXISTING NOISE ENVIRONMENT

The noise environment in the Specific Plan area is mainly influenced by transportation noise generated by SR-78, which runs east-west approximately 500 feet north of the project site. Vehicular traffic noise is also generated on the adjacent local roadways, including El Camino Real, Marron Road, Monroe Street, and the unnamed loop road, with a minor contribution from other commercial areas east of El Camino Real. The existing Westfield Carlsbad shopping center also presently generates roadway and parking lot noise, and HVAC equipment noise.

2.2 FUTURE NOISE ENVIRONMENT

The future noise environment in the vicinity of the Specific Plan area will primarily be influenced by roadway traffic and existing noise sources, as well as additional noise resulting from the proposed redevelopment of the Westfield Carlsbad shopping center. Considering that the majority of future noise environment changes would result from traffic noise, a noise analysis based on build out traffic volumes is included as a part of this report.

3.0 STUDY METHODS, EQUIPMENT, AND PROCEDURES

This section discusses the methods and procedures followed for the noise study, including the selection of noise measurement and receiver locations (Figure 2), noise measurement procedures, and noise impact evaluation.

3.1 METHODOLOGY

Typically, a “one-hour” equivalent sound level measurement (L_{EQ} , A-Weighted) is recorded for at least one noise-sensitive location on the site. During the on-site noise measurement, start and end times are recorded and vehicle counts are made for cars, medium trucks (double-tires/two axles), and heavy trucks (three or more axles) for the corresponding road segment(s). Supplemental sound measurements of one hour or less in duration are often made to further describe the noise environment of the site.

For measurements of less than one hour in duration, the measurement time is long enough for a representative traffic volume to occur and the noise level (L_{EQ}) to stabilize; 15 minutes is usually sufficient for this purpose. The vehicle counts are then converted to one-hour equivalent volumes by using the appropriate multiplier. Other field data gathered includes measuring or estimating distances, angles-of-view, slopes, elevations, roadway grades, and vehicle speeds. These data were checked against available maps and records.

3.2 EQUIPMENT

The following equipment was used to measure existing noise levels at the project site:

- Larson Davis System LxT Integrating Sound Level Meter
- Larson Davis Model CA250 Calibrator
- Windscreen and tripod for the sound level meter
- Distance measurement wheel
- Digital camera

The sound level meter was field-calibrated immediately prior to the noise measurement, to ensure accuracy. All sound level measurements conducted and presented in this report in accordance with the regulations, were made with a sound level meter that conforms to the American National Standards Institute (ANSI) specifications for sound level meters (ANSI S1.4-1983 R2001). All instruments are maintained with National Bureau of Standards traceable calibration per the manufacturers' standards.

3.3 NOISE MODELING SOFTWARE

Modeling of the outdoor noise environment is accomplished using Computer Aided Noise Abatement (CADNA) Ver. 3.6, which is a model-based computer program, developed by DataKustik for predicting noise impacts in a wide variety of conditions. CADNA assists in the calculation, presentation, assessment, and mitigation of noise exposure. It allows for the input of project information, such as noise source data, barriers, structures, and topography to create a detailed CAD model and uses the most up-to-date calculation standards to predict outdoor noise impacts. CADNA traffic noise prediction is based on the data and methodology used in the Federal Highway Administration (FHWA) Traffic Noise Model (TNM) version 2.5.

4.0 EXISTING NOISE ENVIRONMENT

As described in Section 2.0, the dominant local noise source is traffic noise from the adjacent streets and from SR-78. An inspection of the existing site, including the planned locations of the new facilities, was conducted from 1:15 p.m. to 2:30 p.m. on Wednesday, February 5, 2010. The weather conditions were as follows: a light breeze from the west, moderate humidity, sunny, and temperatures in the mid 70s. Several 15-minute ambient noise measurements were taken around the site, including close to the residences (as feasible) and adjacent to El Camino Real. The microphone position was approximately five feet above the existing grade at all measurement locations. The measured noise levels were primarily as a result of vehicular traffic noise along El Camino Real and SR-78.

4.1 SITE NOISE MEASUREMENTS AND COMPARISON CALCULATIONS

The primary measurement with a traffic count was made at location M1 (shown on Figure 2) with a measured noise level of 62.5 dBA L_{EQ} . This "one-hour" equivalent noise measurement was made approximately 120 feet from the centerline of El Camino Real. This location provided

a publicly accessible on-site location with unobstructed traffic viewing angles. At this location, the noise from SR-78 provided a minimal influence on the noise from El Camino Real. The microphone was on a tripod positioned five feet above grade. A 15-minute continuously recorded sound level measurement was used to obtain an integrated and stable L_{EQ} to adjust and test the traffic noise model for reliability with site conditions.

Table 4-1 shows the site conditions during on-site noise measurements. Table 4-2 shows the measured noise level at location M1, as well as the noise levels at two supplemental measurement locations where no traffic counts were made (i.e., M2 and M3). Table 4-3 documents the amount of traffic along El Camino Real during the noise measurement at location M1. Table 4-4 presents the CADNA modeling comparison to the measured noise level. As shown in Table 4-4, the calculated traffic noise level was 63.4 dBA L_{EQ} , which is a difference of 0.9 dBA L_{EQ} from the measured noise level. Site traffic noise modeling accuracy within two dBA of measured site values is considered acceptable for future site traffic noise predictions.

Table 4-1 ON-SITE NOISE MEASUREMENT CONDITIONS	
Date	Wednesday, February 5, 2010
Time	1:20 p.m. to 1:35 p.m.
Conditions	Clear skies, no breeze, temperature in the mid 70s with low humidity

Table 4-2 ON-SITE NOISE MEASUREMENTS			
Location	Time (p.m.)	Measured Noise Level (dBA L_{EQ})	Location Description
M1	1:20 to 1:35	62.5	Near El Camino Real in easternmost on-site parking lot
M2	1:45 to 2:00	59.1	South of Sear's Department Store adjacent Marron Road
M3	2:10 to 2:25	58.4	South edge of office building parking lot south of Marron Road (below residential patios)

Table 4-3 TRAFFIC COUNTS ALONG EL CAMINO REAL DURING NOISE MEASUREMENT						
Roadway	Duration		Autos	Medium Trucks (MT)	Heavy Trucks (HT)	Total
All Roads	Measured	15 minutes	428	9	2	439
	Overall	60 minutes	1711	35	8	1754

Note: Medium Trucks are trucks with double-tires and two axles; Heavy Trucks have three or more axles.

Table 4-4 SITE MEASUREMENT COMPARISONS (dBA L_{EQ})		
Location	Measured Noise Level	Calculated Noise Level
M1	62.5	63.4
M2	59.1	60.3
M3	52.3	54.0

The model-calculated noise output is the one-hour L_{EQ}, and is the equivalent CNEL with the use of 8 to 10 percent of the average daily traffic (Caltrans Technical Noise Supplement, 2009) (6 to 8 percent traffic may be converted by adding 2 to the one-hour L_{EQ} for the equivalent CNEL). Site and surrounding area existing CNEL noise contours are shown on Figure 3.

4.2 SUMMARY OF SITE-SPECIFIC FEATURES INCLUDED IN CADNA MODEL

The CADNA models prepared for the proposed project (for both the existing and proposed conditions) include the existing and modified site topography, existing and planned on-site structures, and the residential structures that provide noise shielding to other structures.

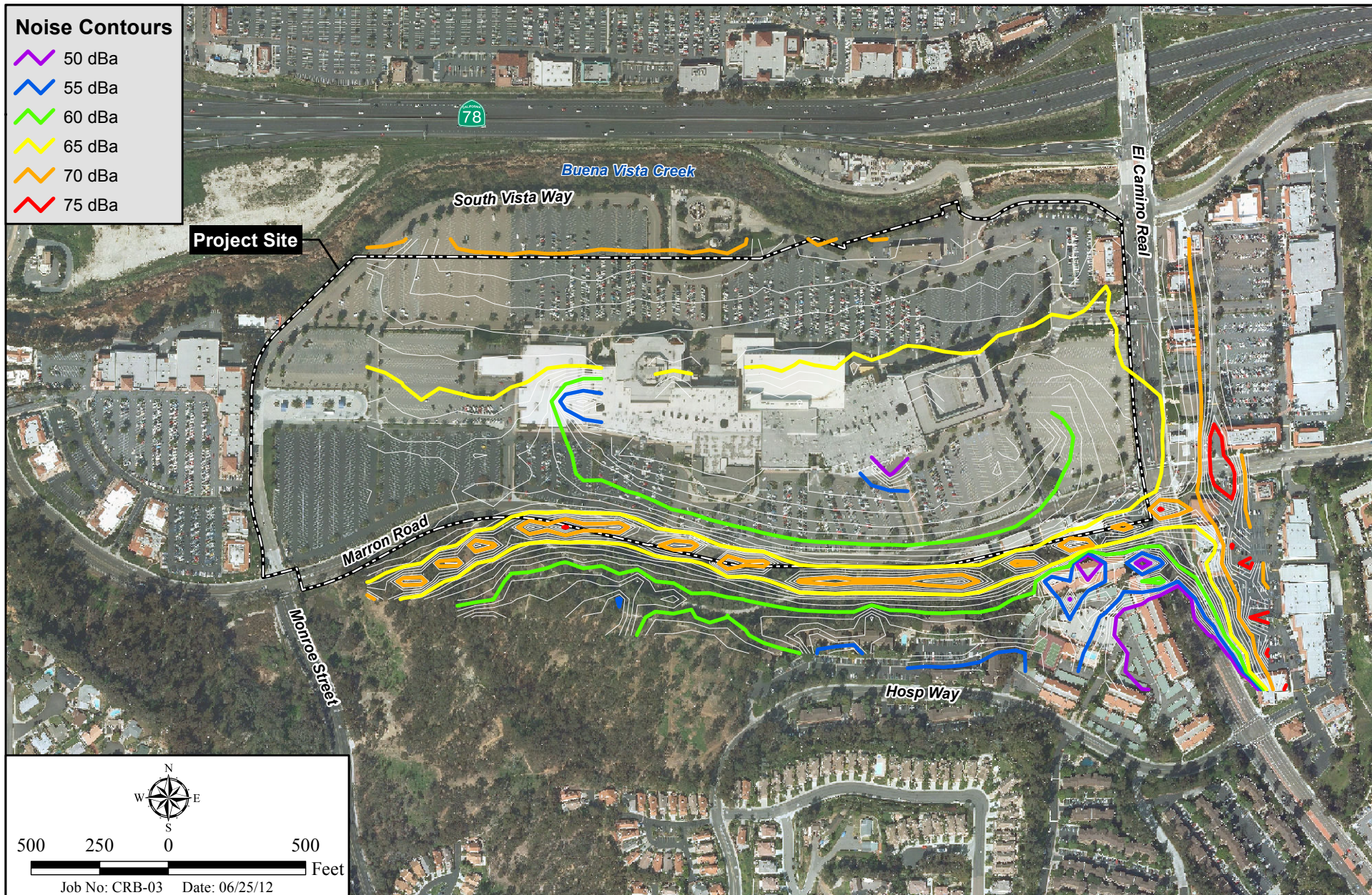
5.0 STANDARDS AND EXISTING NOISE LEVELS

In the absence of local standards, the City of Carlsbad uses the County of San Diego nuisance noise level ordinances as a basis for assessing noise impacts for non-transportation (or stationary) sources. As described below, these standards include a provision for consideration of the change in noise from the current levels to future levels as part of the criteria. Limits in the Noise Element of the General Plan, as noted in the Noise Guidelines Manual, are used to assess transportation sources.

According to the County's Noise Ordinance, it is unlawful for any person to cause or allow the creation of any noise to the extent that the one-hour average sound level at any point on or beyond the boundaries of the property would exceed the applicable limits listed in the County's Noise Ordinance (refer to Section 1.5 of this report). Since the site is commercial and the adjacent southern property is multi-family residential, the applicable nuisance noise limit is 57.5 dBA from 7 a.m. to 10 p.m. and 52.5 dBA from 10 p.m. to 7 a.m.

The City of Carlsbad considers an increase of 3 CNEL related to transportation noise sources to be significant.

Because both the project and SR-78 have the potential to exceed the allowable noise standards at the analyzed receiver locations, analysis is provided with and without SR-78 to isolate the noise effects of the project on local roads from the more dominant noise of SR-78 and determine if the transportation noise on local roads is in compliance with the City standards.



Existing Traffic Noise Contours

WESTFIELD CARLSBAD

Figure 3

5.1 EXISTING NOISE SOURCES

Existing on-site noise sources include HVAC equipment and vehicular traffic within the parking lots. No other outside significant noise sources were identified at the site. The interior on-site commercial uses are located within structures that would attenuate interior-to-exterior noise levels. Considering the attenuation, interior commercial noise would have minimal impacts to exterior noise levels and is not relevant to this analysis. Off-site roadway noise is also addressed below.

To determine the influence these existing on-site noise sources have on noise exposure for surrounding uses, a series of modeling receivers was established. These receivers were located at the approximate property line edge of the potentially impacted residential properties south of the project site and referred to herein as R1 through R20. As noted above, these receiver points are shown on Figure 2. Where the potential impact location has a second story (all locations), both a first-story and second-story receptor are included in the analysis. The second-story receptors are shown immediately to the west or north of the first-story receptors.

5.2 EXISTING AIR CONDITIONERS AND VENTILATORS

No reasonable methodology is available to determine the exact existing HVAC noise levels. Planning is based on an assumed use of one ton of A/C for every 325 to 350 square feet of interior space. It is reasonable to assume that there could be additional kitchen ventilators and makeup air “swamp coolers.”

Assumed commercial HVAC requirements for this analysis are based on 3,400 tons of air conditioning associated with the 1,151,092 sf of existing commercial space at Westfield Carlsbad.

The equipment noise levels used in this analysis are those published for a Carrier 40RMQ012 24-ton HVAC unit, as shown in Table 5-1. The same noise level is used for both the HVAC and refrigeration/freezer equipment.

Table 5-1 HVAC EQUIPMENT										
Source	Octave Frequency (Hz) ¹ (L_{EQ})									dBA L_{EQ}
	31.5	63	125	250	500	1,000	2,000	4,000	8,000	
40RMQ024	102.6	102.6	98.6	94.6	95.6	89.6	87.6	83.6	83.6	96.4

¹ Based on Sound Power Levels (S_{WL})

The existing noise levels from the site HVAC units projected out to the receivers are provided in Table 5-2. The noise levels in the table are a hypothetical worst-case scenario based on all units working simultaneously for one hour, and were determined to range from 29.9 to 59.4 dBA L_{EQ} at the receiver locations (Table 5-2).

Table 5-2 EXISTING HVAC NOISE (dBA L_{EQ})			
Location	Calculated Noise Level	Location	Calculated Noise Level
R1	49.4	R11	59.3
R2	49.5	R12	59.4
R3	50.2	R13	56.7
R4	50.5	R14	57.3
R5	47.8	R15	40.0
R6	51.9	R16	38.4
R7	52.2	R17	32.7
R8	52.7	R18	33.0
R9	58.9	R19	29.9
R10	58.7	R11	30.8

5.3 EXISTING PARKING LOTS

The existing shopping center has approximately 6,402 parking spaces. Analysis is based on an average hourly turnover of 0.25 cars per space. The projected noise levels from the site parking lot at the receivers are provided in Table 5-3. Existing parking lot noise ranges from 26.1 to 44.7dBA L_{EQ} at the receiver locations.

Table 5-3 EXISTING PARKING LOT NOISE (dBA L_{EQ})			
Location	Calculated Noise Level	Location	Calculated Noise Level
R1	39.4	R11	43.0
R2	39.7	R12	44.1
R3	39.6	R13	41.6
R4	40.0	R14	42.8
R5	36.5	R15	31.4
R6	40.0	R16	32.3
R7	38.2	R17	27.7
R8	39.8	R18	28.4
R9	43.8	R19	26.1
R10	44.7	R11	26.8

5.4 EXISTING ROADWAY NOISE

All traffic data used in this study, except the traffic volumes for SR-78, are based on the Transportation Study for the project prepared by Gibson Transportation Consulting (Gibson) dated August 2012. Traffic planning information for SR-78 is from the SANDAG website including a 10-percent peak hour traffic calculation. Table 5-4 presents the current project planning baseline.

Table 5-4 EXISTING (2009) TRAFFIC CONDITIONS						
Roadway Segment		Existing Baseline				
		ADT	Peak Hour Traffic	Cars	MT ¹	HT ²
SR-78				95.0%	3.0%	2.0%
	Jefferson Rd to El Camino Real	129,000	12,900	12255	258	258
El Camino Real				96.0%	3.0%	1.0%
	North of Plaza Drive NB	44,043	1,502	1442	45	15
	North of Plaza Drive SB		1,366	1311	41	14
	South of Plaza Drive NB	35,940	1,470	1411	44	15
	South of Plaza Drive SB		1,337	1284	40	13
	South of Vista Way NB	32,833	1,392	1336	42	14
	South of Vista Way SB		1,078	1035	32	11
Marron Rd				98.0%	3.0%	1.0%
	West of El Camino Real EB	9,362	407	399	12	4
	West of El Camino Real WB		386	378	12	4
Monroe St				98.0%	1.5%	0.5%
	South Marron Rd NB	6,848	291	285	4	1
	South Marron Rd SB		341	334	5	2

¹Medium trucks with double tires and two axles

²Heavy trucks with three or more axles

The calculated impacts from existing vehicular traffic along roadways to receivers are shown in Table 5-5. As shown in the table, without noise from SR-78, traffic noise from the local roadways range from 45.7 to 62.6 dBA L_{EQ}. When the contribution from SR-78 is included, the noise is raised to 51.4 to 62.9 dBA L_{EQ}.

**Table 5-5
EXISTING ROADWAY NOISE (CNEL/Peak Hour dBA L_{EQ})**

Location	Calculated Noise Level		Location	Calculated Noise Level	
	With SR-78	Without SR-78		With SR-78	Without SR-78
R1	52.5	50.3	R11	57.0	53.3
R2	54.1	51.9	R12	56.7	53.4
R3	53.1	50.9	R13	57.4	54.7
R4	54.1	51.8	R14	62.2	61.8
R5	51.4	45.7	R15	62.9	62.5
R6	54.6	50.9	R16	62.0	61.8
R7	52.0	46.8	R17	62.6	62.3
R8	53.9	49.4	R18	62.3	62.1
R9	56.1	52.0	R19	57.9	55.7
R10	55.9	52.5	R20	62.9	62.6

5.5 OVERALL EXISTING NOISE ENVIRONMENT

Table 5-6 provides the calculated noise levels at the analyzed receiver locations from all of the current shopping center exterior noise sources. As shown in the table, the existing combined shopping center noise ranges from 29.8 to 59.4 dBA L_{EQ} at the receiver locations.

**Table 5-6
EXISTING SHOPPING CENTER NOISE LEVELS
(dBA L_{EQ})**

Location	Calculated Noise Level	Location	Calculated Noise Level
R1	47.7	R11	58.1
R2	49.8	R12	59.4
R3	48.5	R13	55.4
R4	50.7	R14	36.8
R5	47.7	R15	37.5
R6	52.1	R16	31.7
R7	50.6	R17	33.2
R8	52.8	R18	29.8
R9	57.5	R19	57.3
R10	58.7	R20	31.5

6.0 PROJECT NOISE ANALYSIS

As shown in the prior section, noise at many of the analyzed receiver locations currently exceeds the residential standard allowable level 57.5 dBA from 7 a.m. to 10 p.m. and 52.5 dBA from 10 p.m. to 7 a.m. due to a combination of stationary (i.e., HVAC and parking lot) and roadway noise sources (see Table 5-6).

The proposed project would have two separate noise impact periods: construction (including demolition and general construction) and operation. These impact periods are discussed below.

6.1 CONSTRUCTION NOISE IMPACTS

Demolition

Site demolition would likely include a variety of equipment, including the use of a “breaker” to demolish concrete footings and concrete structures. It is assumed that concrete and asphalt would be broken up on site with a portable rock/cement crusher. Other probable demolition and cleanup equipment includes a small dozer, loader, skid-steer, and dump trucks. Of all the demolition equipment identified by the project applicant, the worst-case noise condition would occur during the few days while the breaker is in operation and the on-site portable rock/cement crusher is in use.

The hours of operation and sound levels for the breaker were obtained from the British Department of Environmental Food and Rural Affairs. Table 6-1 shows the octave sound power levels with the operation time for the analyzed breaker.

Table 6-1 BREAKER NOISE LEVELS AND EVALUATION PARAMETERS									
Expected Equipment	Octave Band Noise Level¹ (L_{EQ}) (Hz)								Overall Noise Level (dBA)
	63	125	250	500	1K	2K	4K	8K	
Breaker	113.5	118.5	116.5	118.5	122.5	119.5	118.5	116.5	126.7

¹ Based on Sound Power Levels (S_{WL})

A portable rock/cement crusher may be used at the site to reduce material size for use as base material or for material export. Table 6-2 below provides a typical crusher noise level as well as a large loader around the crusher loading material into the crusher and stacking it for further use or export. The noise levels in this table were measured for a single rocking jaw concrete crusher system at Vulcan Materials located at 6029 East Vineyard Avenue, Oxnard, California, at 2:30 p.m. on Monday, October 30, 2006. A second set of measurements was conducted on July 19, 2007 at a crusher site located at 13552 Calimesa Boulevard, Yucaipa, California. This site had three types of crushers. Because this was a similar operating facility with multiple operating systems, a series of noise measurements was conducted around and at varying distances from the equipment.

Table 6-2
CRUSHER AND LOADER OPERATIONS

Expected Equipment	Octave Band Noise Level ¹ (L _{EQ}) (Hz)								Overall Noise Level (dBA)
	63	125	250	500	1,000	2,000	4,000	8,000	
Jaw Crusher	115.4	117.1	112	114.5	113	111.5	107.3	99.8	118
Loader as a Line Source	121.6	109.8	105.9	103.1	118.9	106.6	99.9	95.5	119.4

¹ Based on Sound Power Levels (S_{WL})

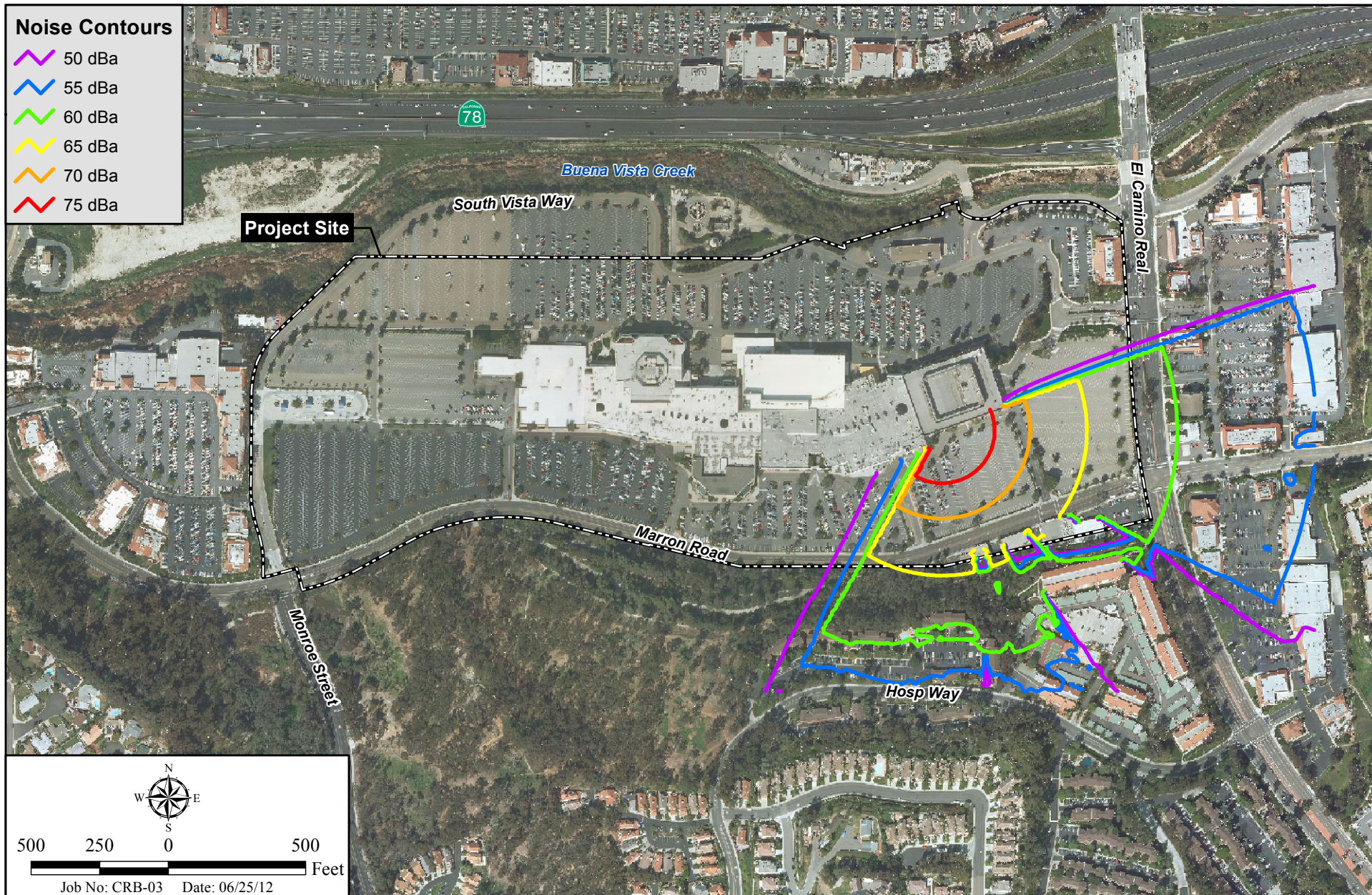
Table 6-3 below provides the noise impacts associated with the worst-case condition wherein the crushing operation is located in the current parking area at the eastern end of the shopping center near the former Robinsons-May department store. Breaker noise levels are provided separately for a breaker being used on the main (former Robinsons-May) building.

Table 6-3
WORST-CASE PROJECT DEMOLITION NOISE (dBA L_{EQ})

Location	Calculated Noise Level		Location	Calculated Noise Level	
	Breaker Main Building	Crusher & Loader		Breaker Main Building	Crusher & Loader
R1	53.1	60.6	R11	61.9	65.4
R2	52.4	61.2	R12	62.7	66.1
R3	61.4	62.1	R13	60.9	65.3
R4	62.0	62.7	R14	41.6	63.7
R5	57.8	62.9	R15	41.6	64.4
R6	62.5	63.6	R16	36.6	62.6
R7	61.6	63.2	R17	37.9	63.1
R8	62.3	63.8	R18	34.7	61.3
R9	62.8	65.3	R19	61.8	66.0
R10	63.6	66.0	R20	36.3	61.9

Figure 4 shows the noise contours from a breaker working at the former Robinsons-May building. Figure 5 shows the impacts of a crusher being used in the parking area to the east of the Robinsons-May building.

The other demolition operations, including demolition of the parking lot areas, would create significantly lower noise impacts and would not significantly contribute to the ambient noise levels at the receiver locations. As shown in the above table, the continuous use of a breaker for

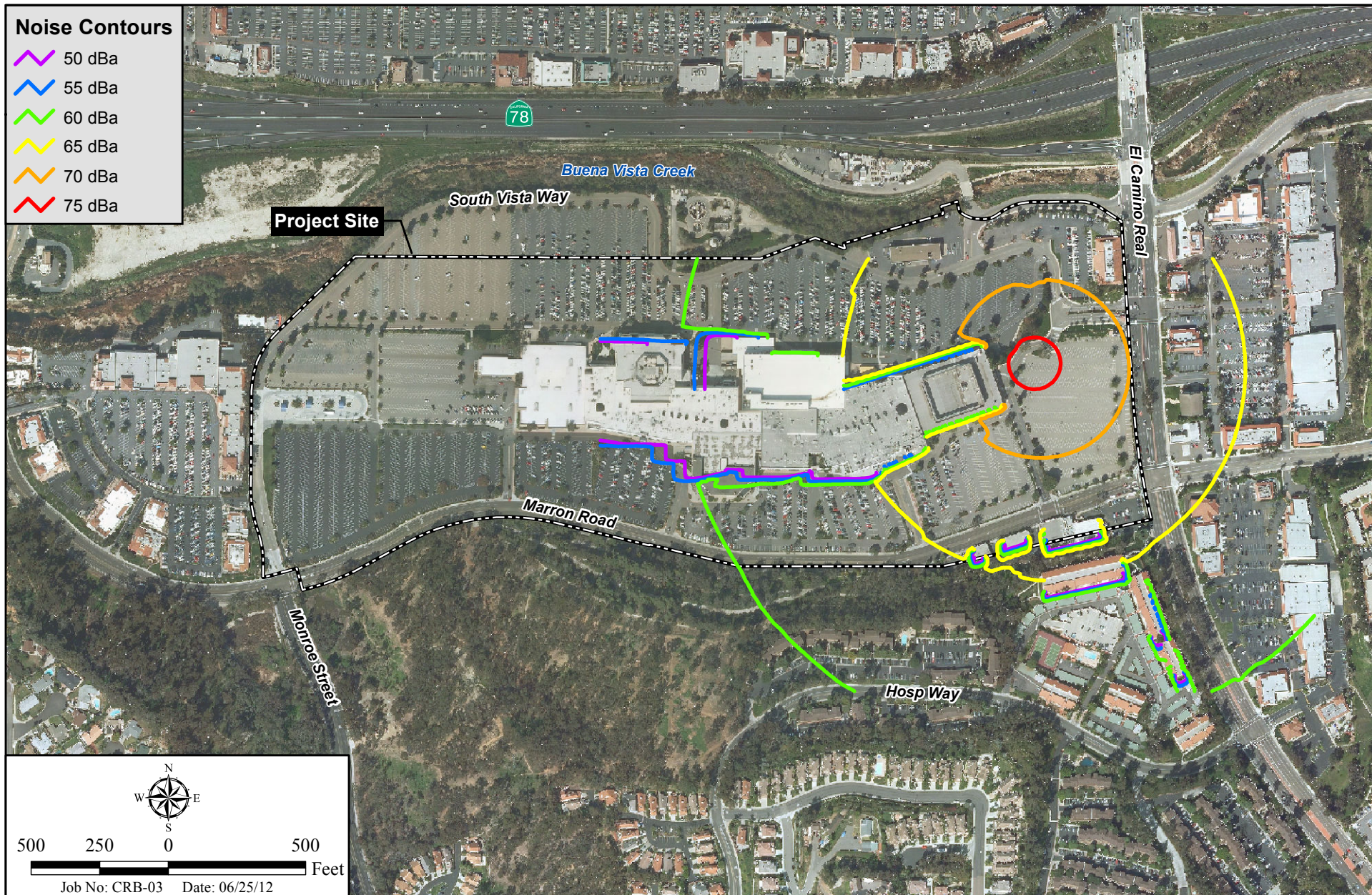


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Main Building Breaker Impacts

WESTFIELD CARLSBAD

Figure 4



Crusher Impacts

WESTFIELD CARLSBAD

Figure 5

demolition of a portion of the main mall structures would lead to noise ranging from 34.7 to 63.6 dBA L_{EQ} at the receiver locations. Also shown in the table, the crusher operations would range from 60.6 to 66.1 dBA L_{EQ} .

General Construction

Construction activities can roughly be divided into six phases, with these phases potentially exhibiting some overlap depending on specific locations and timing: utilities excavation, foundation preparation, building construction, finish grading, paving, and landscaping. Site construction would entail the use of heavy equipment throughout the site for the full term of construction. Typical equipment for the proposed type of construction is assumed to include: small dozer, excavator(s), backhoe loader(s), compactor(s), water truck, boom concrete pumper, trencher(s), forklifts, light mobile cranes or sky lifts, grader, paver, compactor, skid steer(s), mini excavator, trencher, and a variety of specific tools including welders, metal shears, and light hand tools. The equipment necessary for the construction phase of the proposed project would be typical of construction equipment used for general office/commercial construction. Construction hours would be limited to the hours and days indicated in the City of Carlsbad Municipal Code. Thus, construction noise impacts would not exceed the City construction noise ordinances and would be considered less than significant.

6.2 PROJECT STATIONARY NOISE IMPACTS

The proposed improvements would introduce several new or modified operational noise sources, including new restaurants, retail sales buildings, and reconfigured parking lots. These sources are similar to the current site noise sources but include changes and additions to the building square footage as well as overall reduced parking areas. Table 6-4 provides a summary of the building square footage for the proposed SDP.

Table 6-4 BUILDING SQUARE FOOTAGE (sf)	
Existing Commercial	1,151,092
Existing Commercial to be Renovated	(225,631)
Proposed New Commercial Level 1	150,944
Proposed New Commercial Level 2	110,104
Total Commercial Proposed	261,048
Net New Commercial Proposed	35,417
Future Commercial (Existing plus Proposed)	1,186,509

The proposed building modifications may include changes to the existing loading docks. Typical noise sources which may be associated with a loading dock are the trucks, truck backup alarm, and trailer refrigeration units, forklifts and the associated backup alarms.

Typical backup alarms generate noise of 97 dBA at 4 feet at a single frequency of 1 KHz. The impacts from a backup alarm occurring 2 times in an hour are shown in Table 6-5 below:

Table 6-5 BACKUP ALARM IMPACTS NOISE LEVELS (dBA L_{EQ})			
Location	Future (With Project)	Location	Future (With Project)
R1	15.7	R11	9.3
R2	20.5	R12	12.1
R3	14.4	R13	8.2
R4	19.3	R14	11.1
R5	12.5	R15	1.6
R6	16.9	R16	2.9
R7	10.8	R17	1
R8	15.8	R18	3.2
R9	10.3	R19	0.3
R10	13.8	R20	2.1

Proposed Restaurants

New standalone restaurants eventually could occupy the outbuilding pads proposed in the eastern project area. These restaurants would have several potential noise sources that are typical for food storage, including refrigeration and freezer condensers. The proposed buildings also would likely include roof-top (e.g., HVAC) equipment. The potential future restaurants uses other than the rooftop systems and potential outdoor seating areas are not expected to be significant noise generators.

Restaurant Outdoor Seating

While specific planning for an outdoor seating area is not feasible at this time, a moderate worst-case assumption would utilize an area to the south of the restaurants as an outdoor seating area with an average area noise level of 75 dBA. The impacts from this level of outdoor noise are shown in Table 6-6, below.

Table 6-6 RESTAURANT OUTDOOR SEATING IMPACTS NOISE LEVELS (dBA L_{EQ})			
Location	Future (With Project)	Location	Future (With Project)
R1	20.4	R11	33.5
R2	25.1	R12	37.6
R3	22.6	R13	33.3
R4	27.2	R14	37.5
R5	24.7	R15	27.2
R6	29.2	R16	31.2
R7	25.5	R17	24.7
R8	30.1	R18	28.9
R9	32.6	R19	22.7
R10	36.5	R20	26.8

This analysis specifically precludes outdoor speakers or outdoor amplified music systems. Any use of outdoor speakers or amplified music systems would require a specific analysis as part of the SDP application process for the future outbuildings.

HVAC and Refrigeration/Freezer

Specific equipment has not been selected, nor is planning available for the specific equipment locations because their location(s) has not yet been defined. For the purposes of this analysis, it has been assumed that a typical size and location HVAC system would be used in this type of facility (restaurant). The equipment noise levels used in this analysis are the same as used in the existing conditions analysis. The calculated noise impacts from the potential HVAC and refrigeration equipment is shown in Table 6-7.

Table 6-7 PROPOSED PROJECT HVAC AND REFRIGERATION IMPACTS (dBA L_{EQ})			
Location	Calculated Noise Level	Location	Calculated Noise Level
R1	49.6	R11	59.5
R2	49.9	R12	59.8
R3	50.5	R13	57.1

Table 6-7 (cont.) PROPOSED PROJECT HVAC AND REFRIGERATION IMPACTS (dBA L_{EQ})			
Location	Calculated Noise Level	Location	Calculated Noise Level
R4	51.0	R14	57.9
R5	48.3	R15	43.8
R6	52.4	R16	44.6
R7	52.5	R17	40.1
R8	53.2	R18	42.1
R9	59.1	R19	38.1
R10	59.1	R20	40.1

Proposed Project Parking Lots

The proposed project would result in a net reduction of 471 parking spaces on site. The minor reduction in parking lot noise due to the reduction in parking spaces would be negligible and, therefore, was not calculated.

6.3 COMBINED STATIONARY NOISE IMPACTS

Table 6-8 provides the calculated noise levels at the analyzed receiver locations from all of the exterior stationary sources after the Westfield Carlsbad revitalization is completed. As shown, the total stationary project noise impact ranges from 38.4 to 59.9 dBA L_{EQ} at the receiver locations.

As can be seen in Table 6-8, the site noise levels are out of compliance both in the existing (no project) and existing with project conditions. The site noise is less than peak hour traffic noise levels as described in Section 6.4.

Table 6-8 COMBINED NOISE IMPACTS – PROJECT VS. NO PROJECT NOISE LEVELS (dBA L_{EQ})				
Location	Existing (No Project)	Future (With Project)	Change	Significant
R1	49.8	50.1	0.3	No
R2	49.9	50.3	0.4	No
R3	50.6	50.9	0.3	No

Table 6-8 (cont.) COMBINED NOISE IMPACTS – PROJECT VS. NO PROJECT NOISE LEVELS (dBA L_{EQ})				
Location	Existing (No Project)	Future (With Project)	Change	Significant
R4	50.9	51.4	0.5	No
R5	48.1	48.6	0.5	No
R6	52.2	52.8	0.6	No
R7	52.4	52.8	0.4	No
R8	52.9	53.5	0.6	No
R9	59	59.3	0.3	No
R10	58.8	59.4	0.6	No
R11	59.4	59.7	0.3	No
R12	59.5	59.9	0.4	No
R13	56.8	57.5	0.7	No
R14	57.4	58.2	0.8	No
R15	40.6	44.3	3.7	No
R16	39.4	45.2	5.8	No
R17	33.9	40.4	6.5	No
R18	34.3	42.4	8.1	No
R19	31.4	38.4	7	No
R20	32.3	40.4	8.1	No

6.4 PROJECT ROADWAY NOISE IMPACTS

Tables 6-9, 6-10, and 6-11 provide the Existing plus Project, Near-term and Horizon Year traffic volumes for the roadways in the project area studied in the Transportation Study and SR-78.

**Table 6-9
EXISTING PLUS PROJECT (2009) TRAFFIC CONDITIONS**

Roadway Segment		Existing Plus Project				
		ADT	Peak Hour Traffic	Cars	MT ¹	HT ²
SR-78				95.0%	3.0%	2.0%
	Jefferson Rd to El Camino Real	129,000	12,900	12255	258	258
El Camino Real				96.0%	3.0%	1.0%
	North of Plaza Drive NB	44,866	1,695	1627	51	17
	North of Plaza Drive SB		1,529	1468	46	15
	South of Plaza Drive NB	36,279	1,560	1498	47	16
	South of Plaza Drive SB		1,426	1369	43	14
	South of Vista Way NB	32,883	1,450	1392	44	15
	South of Vista Way SB		1,133	1088	34	11
Marron Rd				98.0%	3.0%	1.0%
	West of El Camino Real EB	9,676	502	492	15	5
	West of El Camino Real WB		483	473	14	5
Monroe St				98.0%	1.5%	0.5%
	South Marron Rd NB	6,952	313	307	5	2
	South Marron Rd SB		366	359	5	2

¹Medium trucks with double tires and two axles

²Heavy trucks with three or more axles

**Table 6-10
NEAR-TERM (2020) TRAFFIC CONDITIONS**

Roadway Segment			Near-term No Project				Near-term With Project					
			ADT	Peak Hour Traffic	Traffic Breakdown			ADT	Peak Hour Traffic	Traffic Breakdown		
					Cars	MT ¹	HT ²			Cars	MT ¹	HT ²
SR-78												
	Jefferson Rd to El Camino Real	144,000	14,400	13680	288	288	144,000	14,400	13680	288	288	
El Camino Real												
	North of Plaza Drive NB	51,662	1,472	1413	44	15	52,485	1,472	1413	44	15	
	North of Plaza Drive SB		1,430	1373	43	14		1,430	1373	43	14	
	South of Plaza Drive NB	32,310	1,360	1306	41	14	32,649	1,360	1306	41	14	
	South of Plaza Drive SB		1,340	1286	40	13		1,340	1286	40	13	
	South of Vista Way NB	27,736	1,222	1173	37	12	27,874	1,222	1173	37	12	
	South of Vista Way SB		1,116	1071	33	11		1,116	1071	33	11	
Marron Rd												
	West of El Camino Real EB	10,556	511	501	15	5	10,870	511	501	15	5	
	West of El Camino Real WB		465	456	14	5		465	456	14	5	
Monroe St												
	South Marron Rd NB	9,713	309	303	5	2	9,817	309	303	5	2	
	South Marron Rd SB		359	352	5	2		359	352	5	2	

¹Medium trucks with double tires and two axles

²Heavy trucks with three or more axles

**Table 6-11
HORIZON YEAR (2030) TRAFFIC CONDITIONS**

Table 6-11 HORIZON YEAR (2030) TRAFFIC CONDITIONS											
Roadway Segment		Existing Baseline					Existing Plus Project				
		ADT	Peak Hour Traffic	Traffic Breakdown			ADT	Peak Hour Traffic	Traffic Breakdown		
				Cars	MT ¹	HT ²			Cars	MT ¹	HT ²
SR-78				95.0%	3.0%	2.0%			95.0%	3.0%	2.0%
	Jefferson Rd to El Camino Real	184,000	18,400	17480	368	368	184,000	18,400	17480	368	368
El Camino Real				96.0%	3.0%	1.0%			96.0%	3.0%	1.0%
	North of Plaza Drive NB	40,854	1,071	1028	32	11	41,584	1,695	1627	51	17
	North of Plaza Drive SB		1,149	1103	34	11		1,529	1468	46	15
	South of Plaza Drive NB	24,782	978	939	29	10	25,127	1,560	1498	47	16
	South of Plaza Drive SB		1,107	1063	33	11		1,426	1369	43	14
	South of Vista Way NB	26,421	1,113	1068	33	11	26,528	1,450	1392	44	15
	South of Vista Way SB		980	941	29	10		1,133	1088	34	11
Marron Rd				98.0%	3.0%	1.0%			98.0%	3.0%	1.0%
	West of El Camino Real EB	11,883	616	604	18	6	12,217	626	613	19	6
	West of El Camino Real WB		495	485	15	5		518	508	16	5
Monroe St				98.0%	1.5%	0.5%			98.0%	1.5%	0.5%
	South Marron Rd NB	9,273	314	308	5	2	9,408	319	313	5	2
	South Marron Rd SB		362	355	5	2		371	364	6	2

¹Medium trucks with double tires and two axles

²Heavy trucks with three or more axles

Existing roadway traffic noise is presented in Table 6-12.

Table 6-12 EXISTING ROADWAY NOISE (CNEL/PEAK HOUR dBA L _{EQ})						
Location	WITHOUT PROJECT		PLUS PROJECT		Change in Roadway Noise	
	Calculated Noise Levels		Calculated Noise Levels			
	With SR-78	Without SR-78	With SR-78	Without SR-78	With SR-78	Without SR-78
R1	56.8	55.4	57.5	55.4	0.7	0.0
R2	57.9	56.2	58.5	56.2	0.6	0.0
R3	57.2	55.6	57.8	55.6	0.6	0.0
R4	58	56.2	58.6	56.2	0.6	0.0
R5	55.2	50.1	55.4	50.3	0.2	0.2
R6	58.6	55.4	59.0	55.5	0.4	0.1
R7	56.3	51.4	56.5	51.9	0.2	0.5
R8	58.5	53.9	58.7	54.2	0.2	0.3
R9	60.1	56.3	60.4	56.7	0.3	0.4
R10	60.1	56.7	60.4	57.0	0.3	0.3
R11	61	57.7	61.2	58.1	0.2	0.4
R12	60.9	57.6	61.2	58.1	0.3	0.5
R13	61.2	59.3	61.6	59.6	0.4	0.3
R14	61.7	59.7	62.0	60.2	0.3	0.5
R15	66.3	66	66.5	66.3	0.2	0.3
R16	66.1	65.8	66.4	66.1	0.3	0.3
R17	66.2	65.9	66.4	66.2	0.2	0.3
R18	65.8	65.5	66.1	65.8	0.3	0.3
R19	66.3	66.1	66.6	66.4	0.3	0.3
R20	66.0	65.8	66.3	66.0	0.3	0.2

Future roadway traffic noise is presented in Tables 6-13 and 6-14 for the near-term (2020) and buildout (2030) conditions and the change due to the project. The tables present two conditions: the noise generated on only the local roadways at the receiver of interest and the actual noise at the receiver with the noise from SR-78 which is essentially constant for the analyzed year without regard to the project noise. Both the project and SR-78 have the potential to exceed the allowable noise standards at the analyzed receiver locations. Therefore, the roadway noise analysis provided noise levels with and without SR-78 to determine if the project noise is in compliance with the standard allowable maximum of a 3-CNEL increase in transportation noise where the existing noise exceeds the normally allowed standard.

Table 6-13
NEAR-TERM ROADWAY NOISE
(CNEL/PEAK HOUR dBA L_{EQ})

Location	WITHOUT PROJECT		PLUS PROJECT		Change in Roadway Noise	
	Calculated Noise Levels		Calculated Noise Levels			
	With SR-78	Without SR-78	With SR-78	Without SR-78	With SR-78	Without SR-78
R1	53.2	51.1	53.3	51.2	0.1	0.1
R2	54.8	52.8	54.9	53	0.1	0.2
R3	53.8	51.8	53.9	51.9	0.1	0.1
R4	54.8	52.7	54.9	52.8	0.1	0.1
R5	51.9	46.3	52	46.6	0.1	0.3
R6	55.1	51.6	55.2	51.8	0.1	0.2
R7	52.5	47.8	52.6	48.1	0.1	0.3
R8	54.3	49.7	54.4	50	0.1	0.3
R9	55.9	52.9	56.3	53.7	0.4	0.8
R10	56.1	53.4	56.5	54.1	0.4	0.7
R11	56	52.5	56.6	53.6	0.6	1.1
R12	56.6	53.6	57.2	54.6	0.6	1.0
R13	56.6	53.1	56.9	53.8	0.3	0.7
R14	57.4	54.8	57.8	55.5	0.4	0.7
R15	62.1	61.7	62.1	61.7	0.0	0.0
R16	62.9	62.4	63	62.4	0.1	0.0
R17	61.9	61.7	62	61.7	0.1	0.0
R18	62.6	62.2	62.6	62.2	0.0	0.0
R19	62.2	62	62.2	62	0.0	0.0
R20	62.8	62.5	62.9	62.6	0.1	0.1

Table 6-14
BUILDOUT ROADWAY NOISE
(CNEL/PEAK HOUR dBA L_{EQ})

Location	WITHOUT PROJECT		PLUS PROJECT		Change in Buildout Roadway Noise	
	Calculated Noise Level		Calculated Noise Level			
	With SR-78	Without SR-78	With SR-78	Without SR-78	With SR-78	Without SR-78
R1	53.8	51.4	53.9	51.6	0.1	0.2
R2	55.5	53.2	55.5	53.4	0.0	0.2
R3	54.4	52.1	54.6	52.3	0.2	0.2
R4	55.4	53	55.5	53.2	0.1	0.2
R5	52.6	45.9	52.9	46.9	0.3	1.0
R6	55.8	51.8	56.0	52.2	0.2	0.4
R7	53.2	47.5	53.5	48.4	0.3	0.9

**Table 6-14 (cont.)
BUILDOUT ROADWAY NOISE
(CNEL/PEAK HOUR dBA L_{EQ})**

Location	WITHOUT PROJECT		PLUS PROJECT		Change in Buildout Roadway Noise	
	Calculated Noise Level		Calculated Noise Level			
	With SR-78	Without SR-78	With SR-78	Without SR-78	With SR-78	Without SR-78
R8	55.1	49.8	55.3	50.3	0.2	0.5
R9	56.4	52.9	56.9	54.0	0.5	1.1
R10	56.7	53.5	57.2	54.5	0.5	1.0
R11	56.6	52.4	57.2	53.6	0.6	1.2
R12	57.2	53.5	57.9	54.7	0.7	1.2
R13	57	52.6	57.6	53.9	0.6	1.3
R14	61.3	60.6	62.5	62.1	1.2	1.5
R15	62.2	61.3	63.4	62.7	1.2	1.4
R16	61.0	60.6	62.4	62.1	1.4	1.5
R17	61.3	60.9	63.0	62.6	1.7	1.7
R18	61.8	61.1	62.6	62.3	0.8	1.2
R19	57.7	54.3	58.5	55.6	0.8	1.3
R11	62.0	61.5	63.3	62.9	1.3	1.4

The largest change in noise levels for all traffic scenarios analyzed is below 1.7 dBA (peak hour equivalent to CNEL) and occurs in the Plus Project condition. The City of Carlsbad considers an increase of 3 CNEL related to transportation noise sources to be significant.

6.5 SITE NOISE COMPATIBILITY

The Westfield Carlsbad Specific Plan area is impacted by traffic noise from SR-78, El Camino Real, and Marron Rd. The highest exterior noise at the existing or planned center building façade is 63.5 CNEL; this is considered normally acceptable for a commercial land use by the City of Carlsbad Compatibility for Community Noise Environment Matrix. Therefore, no traffic noise impacts associated with the proposed Specific Plan or SDP are identified.

7.0 MITIGATION

No mitigation is required.

8.0 CONCLUSION

Traffic-related noise impacts to the Specific Plan area and traffic-related noise levels to off-site residences are all within allowable levels established in the City of Carlsbad Noise Guidelines Manual. Therefore, impacts associated with traffic-related noise exposure would be less than significant.

The change in the site noise generation due to the additional project-related construction and operational stationary noise sources would be less than significant.

These conclusions and recommendations are based on the most up-to-date, project-related information available. However, noise characteristics of mechanical equipment may vary for specific installations.

9.0 CERTIFICATION

This report is based on the related project information received and measured noise levels, and represents a true and factual analysis of the acoustical impact issues associated with the proposed Westfield Carlsbad project located on the south side of SR-78 west of El Camino Real in the City of Carlsbad, California. This report was prepared by Charles Terry, Senior Acoustical Analyst.



Charles Terry

August 22, 2012

Date

10.0 REFERENCES

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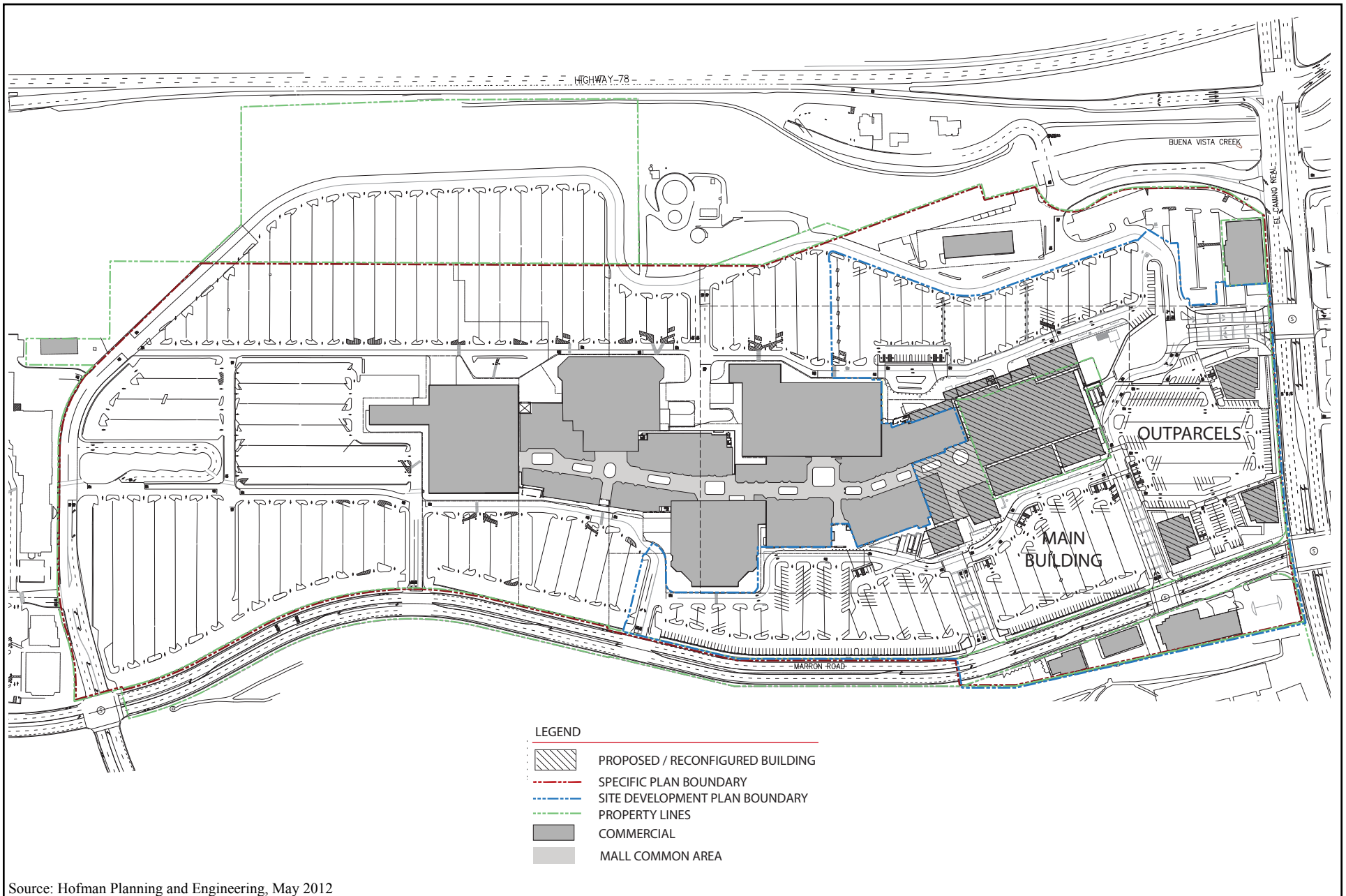
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Appendix A

SITE PLAN





Source: Hofman Planning and Engineering, May 2012
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Current Site Development Plan Proposal

WESTFIELD CARLSBAD

Appendix A